

## Claims

1. Isolated and purified DNA fragment, which is the gene cluster for the anthracycline biosynthetic pathway of the bacterium *Streptomyces nogalater*, being included in a 10kb  
5 and a 7kb flanked *Bgl*III fragments of *S. nogalater* genome.

2. The DNA fragment according to claim 1, comprising the nucleotide sequence given in SEQ ID NO:1, or a sequence showing at least 80% homology to said sequence.

Sub A1 10 3. A recombinant DNA, which comprises the DNA fragment according to claim 1 or 2, cloned in a plasmid replicating in *Streptomyces*.

4. The recombinant DNA according to claim 3, which is the plasmid pSY15c, comprising a 1.4 kb *Bam*HI-*Sac*I fragment from the plasmid pSY42 and a 1.1 kb *Mlu*I-*Kpn*I  
15 fragment from the plasmid pSY43.

5. Plasmid pSY42, deposited in *S. lividans* strain TK24/pSY42 with the deposition number DSM 12451.

20 6. Plasmid pSY43, deposited in *S. lividans* strain TK24/pSY43 with the deposition number DSM 12452.

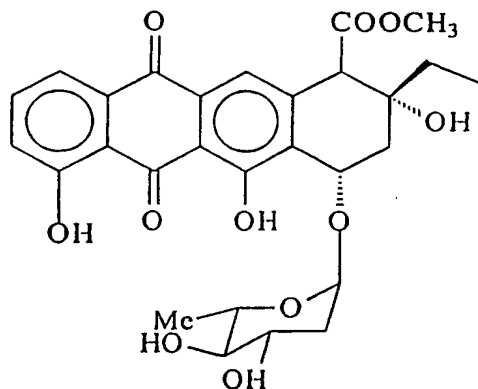
Sub A2 25 7. A process for the production of hybrid compounds, comprising transferring the DNA fragment according to claim 1 or 2 into a *Streptomyces* host, cultivating the recombinant strain obtained, and isolating the compounds produced.

8. The process according to claim 7, wherein the *Streptomyces* host is a *Streptomyces galilaeus* host.

30 9. The process according to claim 8, wherein the *Streptomyces galilaeus* host is selected from the strains H026, H039, H063 and H075, which are mutant strains of *S. galilaeus* ATCC 31615.

10. The process according to claim 8, wherein an anthracycline is produced, which has the following formula I

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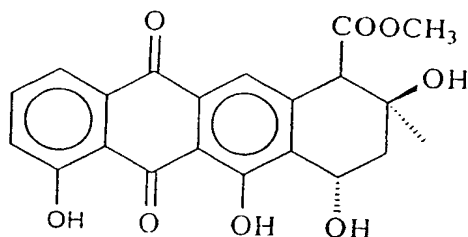


(I)

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11. The process according to claim 8, wherein an anthracyclinone is produced, which has the following formula II

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(II)

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Sub 73  
12. A process for the production of hybrid compounds, comprising transferring at least one of the genes selected from the group consisting of *snogJ*, *snogA*, *snoaM*, *snogN*, *snoaG*, *snogC*, *snogK*, *snoaL*, *snoK*, *snogD*, *snoW*, *snogE*, *snoL*, *snoO* and *snoaF* into a *Streptomyces* host, said genes being derived from the DNA fragment of claim 1 or 2, cultivating the recombinant strain obtained, and isolating the compounds produced.

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13. The process according to claim 12, wherein the gene *snoaL* encoding NAME cyclase is transferred into a *Streptomyces* host.

14. The process according to claim 12, wherein at least one of the genes *snogD* and  
5 *snogE* encoding glycosyl transferases is transferred into a *Streptomyces* host.

15. The process according to claim 12, wherein at least one of the genes *snogJ*, *snogN*, *snogC*, *snogK* and *snogA* affecting the formation of nogalamine and nogalose is transferred into a *Streptomyces* host.

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